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IN THE UNITED STATES DISTRICT COURT FOR THE  
NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his )  
capacity as ATTORNEY GENERAL )  
OF THE STATE OF OKLAHOMA and )  
OKLAHOMA SECRETARY OF THE )  
ENVIRONMENT C. MILES TOLBERT,) )  
in his capacity as the )  
TRUSTEE FOR NATURAL RESOURCES) )  
FOR THE STATE OF OKLAHOMA, )  
 )  
Plaintiff, )  
 )  
vs. ) 4:05-CV-00329-TCK-SAJ  
 )  
TYSON FOODS, INC., et al, )  
 )  
Defendants. )

- - - - -  
VOLUME I OF THE VIDEOTAPED  
DEPOSITION OF BERTON FISHER, PhD, produced as a  
witness on behalf of the Defendants in the above  
styled and numbered cause, taken on the 3rd day of  
September, 2008, in the City of Tulsa, County of  
Tulsa, State of Oklahoma, before me, Lisa A.  
Steinmeyer, a Certified Shorthand Reporter, duly  
certified under and by virtue of the laws of the  
State of Oklahoma.

1 (Whereupon, the deposition began at  
2 9:04 a.m.)

3 VIDEOGRAPHER: We are now on the Record for  
4 the deposition of Berton Fisher. Today is September  
5 3rd, 2008. The time is 9:05 a.m. Would counsel 09:04AM  
6 please identify themselves for the Record?

7 MR. GARREN: Richard Garren for the State  
8 of Oklahoma.

9 MR. GEORGE: Robert George for the Tyson  
10 defendants. 09:05AM

11 MR. McDANIEL: Scott McDaniel for Peterson  
12 Farms, Inc.

13 MR. ELROD: John Elrod for Simmons.

14 MR. BASSETT: Woody Bassett for the  
15 George's defendants. 09:05AM

16 MS. HILL: Theresa Hill for Cargill, Inc.,  
17 and Cargill Turkey Production, LLC.

18 VIDEOGRAPHER: And on the phone?

19 MS. GRIFFIN: Jennifer Griffin for Willow  
20 Brook Foods. 09:05AM

21 MR. SANDERS: Bob Sanders for the Cal-Maine  
22 defendants.

23 VIDEOGRAPHER: Thank you. The witness may  
24 be sworn in.

25 BERTON FISHER, PhD

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**918-587-2878**

1 having first been duly sworn to testify the truth,  
2 the whole truth and nothing but the truth, testified  
3 as follows:

4 DIRECT EXAMINATION

5 BY MR. GEORGE:

09:05AM

6 Q Dr. Fisher, could you state your full name for  
7 the Record, please?

8 A John Berton Fisher.

9 MR. GARREN: And, Robert, may I make the  
10 announcement that we had on our pre-going on the  
11 Record conversation?

09:05AM

12 MR. GEORGE: You may.

13 MR. GARREN: Dr. Fisher has indicated, as  
14 we indicated earlier, in reviewing late yesterday  
15 afternoon for this deposition, under Opinion 18, the  
16 table and the figure that appear in there, appear at  
17 least initially to be possibly containing an error.

09:05AM

18 We haven't yet run that to ground. He's not  
19 prepared today to speak to 18. We'll try and get  
20 that found or researched tonight. If we can't, then  
21 we'll bring him back for Opinion 18 at a later time.

09:06AM

22 Secondly, we gave you a temporary copy of a  
23 field workbook that was prepared by Dr. Fisher this  
24 weekend in anticipation of his deposition and his  
25 actually going to the edge of field sites and

09:06AM

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1 have evidence poultry litter from that farm has been  
2 land applied in the watershed?

3 A I believe there are Tyson facilities in which  
4 that is true.

5 Q Which Tyson facilities? 10:47AM

6 A Have operated within the watershed. Do I have  
7 specific records of them disposing? I have records  
8 from some of them. I can't identify exactly which  
9 ones at this time, but I could look in my records  
10 and find them, of waste management plans which 10:47AM  
11 involve disposal within the watershed.

12 Q From company-owned or company-operated farms?

13 A Yes.

14 Q Let me ask the question one more time, and I  
15 understand you're limited to what you know at this 10:48AM  
16 moment, and if you can direct me to a record, I'd  
17 appreciate it. If you can't, then I'll move on. As  
18 we sit here today, Dr. Fisher, can you identify a  
19 single instance in which a poultry farm operated or  
20 managed by one of the named integrators in this case 10:48AM  
21 has had litter from that farm land applied in the  
22 watershed?

23 MR. GARREN: Object to form.

24 A Okay. The evidence that I have of that --  
25 well, for a specific farm, no. 10:48AM

1 poultry farmer who contracts with Tyson or  
2 Cobb-Vantress for which you can show runoff of  
3 poultry litter into a stream, river or lake?

4 **A** I believe we can with respect to the edge of  
5 field work that was conducted in which we were able  
6 to identify specific origins of waste and specific  
7 locations of waste, such that we could achieve or  
8 collect an edge of field sample from that locality  
9 because that shows runoff that's heading into a

10:55AM

10 drainage and going on into a stream and once it's in  
11 the stream, it heads on into the lake, so there are  
12 those instances. I've not -- I can't sit here and  
13 tell you it's Joe Blow from this farm right today.

10:55AM

14 **Q** As you sit here today, you cannot identify a  
15 single poultry farmer who contracts with Tyson or  
16 Cobb-Vantress for which you can show runoff into a  
17 stream, river or lake; correct?

10:56AM

18 **A** The data is in my records.

19 **Q** Can you go ahead and answer my question? As  
20 you sit here today, you can't identify such a  
21 grower?

10:56AM

22 **A** As I sit here today, I can't recall the  
23 identity of such a grower.

24 **Q** If I were to ask that same question for each  
25 of the other poultry companies that are named as

10:56AM

1 would be to clean up some of the specifics.

2 Q Work you would intend to do?

3 A Yeah. The data already exists, but when you  
4 ask me can I associate individual integrators or  
5 contract growers, associate with individual  
6 integrators and runoff, then I would intend to do  
7 that work. That data is existing.

10:58AM

8 Q Let's close the loop on this line of  
9 questioning, if I can. With the exception of your  
10 comment about the photograph in Figure No. 3, can  
11 you identify a single poultry farmer who contracts  
12 with any of the other integrators named in this  
13 lawsuit that would show runoff of poultry litter  
14 into a stream, river or lake?

10:58AM

15 MR. GARREN: Object to form.

10:58AM

16 A Okay. Not without review of my base data, not  
17 as I sit here today.

18 Q Okay, and the way you would make that showing  
19 would be to review edge of field samples; do I  
20 understand that correctly?

10:58AM

21 A No, not completely.

22 Q Okay. Well, tell me how you would go about  
23 that.

24 A With respect to individual farms, the most  
25 specific information is to review the investigator

10:59AM

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1 escapes from that field into a drainageway, then  
2 it's on its way to Lake Tenkiller at some point.

3 Q But you've not done anything to test your  
4 theory that all edge of field runoff makes it to a  
5 stream, river or lake with respect to a specific 11:03AM  
6 field; is that correct?

7 A With respect to a specific field, no, but I  
8 just hasten to add when it rains, the rivers seem to  
9 rise and the ditches seem to be filled and waste is  
10 running off fields. I'm not sure how I see that 11:03AM  
11 doing it from any given field is significant in that  
12 regard.

13 Q So since it's not significant, you didn't  
14 undertake that analysis; is that right?

15 MR. GARREN: Object to form. 11:03AM

16 A Trying to -- I don't think there's any purpose  
17 in looking at an individual field.

18 Q Okay. Can you identify a single poultry  
19 farmer who contracts with Tyson or Cobb-Vantress for  
20 which you can show that surface applications of 11:03AM  
21 poultry litter have traveled through the soil and  
22 contaminated groundwater in the Illinois River  
23 watershed?

24 A I can't give you a name today.

25 Q If I ask that same question with respect to 11:03AM

1 the other integrators named as defendants in this  
2 case, would I get the same answer?

3 **A** Yes, you would.

4 MR. GARREN: Object to form.

5 MR. McDANIEL: The objection was over the 11:04AM  
6 answer. Restate your answer, if you would, please.

7 MR. GARREN: It's in the Record.

8 MR. McDANIEL: You spoke over it for  
9 purposes of the video. That's all.

10 MR. GARREN: It's in the Record. 11:04AM

11 MR. McDANIEL: Restate your answer.

12 **A** So can I do -- let's be sure that we're real  
13 clear.

14 **Q** You want me to ask it again?

15 **A** Yes, please. I'm sorry. 11:04AM

16 **Q** If I ask the same question with regard to your  
17 ability to identify poultry farmers who contract  
18 with the other integrators named as defendants in  
19 this case for which you can show that surface  
20 application of poultry litter have traveled through 11:04AM  
21 the soil and contaminated groundwater in the  
22 Illinois River watershed, would your answer be the  
23 same?

24 MR. GARREN: Object to form.

25 **A** My answer would be the same. I can't, as I 11:04AM



1 sit here today, give you a name or a specific  
2 location where that has happened. Clearly, though,  
3 it has happened.

4 Q How would you go about determining the answer  
5 to that question if you can't provide it today; what 11:04AM  
6 information would you consult?

7 MR. GARREN: Object to form.

8 A From a specific location?

9 Q Yes, sir.

10 A Gosh, you could do an experiment. You could 11:05AM  
11 place tracer materials on the ground of some type,  
12 probably a chemical tracer, and trace that chemistry  
13 into drainage and groundwater and surface water in  
14 the lake, which in effect for the whole watershed  
15 has been done because the poultry waste is in fact a 11:05AM  
16 tracer, but with respect to an individual field,  
17 you'd have to do that at every field.

18 Q Have you undertaken any such experiments in  
19 the Illinois River watershed?

20 A No, and, in fact, no one in their right mind 11:05AM  
21 would attempt to undertake that experiment.

22 Q Why not?

23 A That would cost an enormous sum of money.

24 Q With respect to a particular field would cost  
25 an enormous sum of money? 11:05AM

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1 enough period of time, runoff is produced. Do you  
2 see that?

3 A That's correct.

4 Q How much rainfall and over what period of time  
5 is required to produce runoff?

04:30PM

6 A Okay. Typically about two inches of rainfall  
7 in about half a day or something like that. That's  
8 better answered by Dr. Engel, but it's about two  
9 inches of rainfall here in a 24-hour period produces  
10 significant runoff.

04:30PM

11 Q And what's your basis for that?

12 A Recollection of conversations I have had with  
13 others, including Dan Storm I believe and Bernie  
14 Engel.

15 Q Did you review any literature?

04:30PM

16 A I probably have. I just don't recall it.

17 Q Let's go to Opinion 22. You say soils to  
18 which poultry waste has been applied within the  
19 Illinois River watershed are contaminated by poultry  
20 waste constituents. Do you see that?

04:31PM

21 A Yes.

22 Q Dr. Fisher, are all the soils in the watershed  
23 contaminated with poultry waste constituents?

24 A No.

25 Q How many fields do you have data on that show

04:31PM

1 contamination from poultry litter?

2 MR. GARREN: Object to form.

3 A I don't know how many fields. We've collected  
4 them here from 73 locations, and there may be  
5 multiple locations per field.

04:31PM

6 Q And is it your opinion, sir, that all 73 of  
7 the locations that you've collected data on are  
8 contaminated by poultry waste?

9 A I really don't offer an opinion about any  
10 specific location.

04:32PM

11 Q So you can't point the court to any particular  
12 field where poultry waste has been applied that you  
13 would say is contaminated?

14 A Well, no, that's not true. I would say if the  
15 amount of phosphorus that's present in the soil, the  
16 Mehlich III phosphorus, exceeds the agronomic rate,  
17 which sort of depends on what you want to call it,  
18 whether it's 65 pounds per acre or 100 pounds per  
19 acre or 125 pounds per acre, if it exceeds that  
20 amount, it's contaminated with phosphorus, and if  
21 it's receiving that phosphorus from poultry waste,  
22 then it's contaminated by poultry waste  
23 constituents.

04:32PM

04:32PM

24 Q So you define contamination as anything in  
25 excess of the agronomic rate?

04:32PM

1 contaminate the Roubidoux aquifer.

2 Q What's the depth?

3 A Well, I don't have the specific depth because  
4 it's somewhat variable.

5 Q All right. Have you identified any location 02:24PM  
6 in the Illinois River watershed where you have  
7 proven that contaminants that came from poultry  
8 litter have polluted any deep aquifer?

9 MR. GARREN: Object to form.

10 A No. 02:24PM

11 Q So in this paragraph, if I understand your  
12 statement, you state that it can happen but you have  
13 not specifically proven that it has in fact  
14 happened?

15 MR. GARREN: Object to form. 02:24PM

16 Q Is that a correct characterization?

17 A That's correct.

18 Q Now, through your own work and analysis, can  
19 you identify any specific groundwater well that has  
20 been contaminated with bacteria that came from 02:24PM  
21 poultry litter?

22 A I think that that -- in terms of making that  
23 assessment, that would need to be an opinion offered  
24 by Drs. Harwood or Teaf or possibly Dr. Olsen.

25 Q Okay. So the question was whether through 02:25PM

1 your own work have you identified any groundwater  
2 well that has been contaminated with bacteria from  
3 poultry litter. Is the answer no?

4 A No. My work has been focused on looking at  
5 the potential for bacterial hazard and evaluating a  
6 bit of the data concerning evidence that may suggest  
7 that it is.

02:25PM

8 Q Okay, but you can't point to any well and say  
9 there's bacteria there and I can show you it came  
10 from poultry litter?

02:25PM

11 A I might be able to tell you -- point to a well  
12 and tell you there's bacteria there, and I could  
13 probably point to well and tell you it's probably  
14 from poultry litter, but I can't do it right now.

15 Q Okay, and that isn't -- those aren't opinions  
16 you've developed as of today?

02:26PM

17 A Well, it's not an opinion that's expressed in  
18 here as to a specific well.

19 Q Okay. Did you conduct any analysis to  
20 determine the potential impacts on groundwater from  
21 septic systems in the Illinois River watershed?

02:26PM

22 MR. GARREN: Object to form.

23 A No.

24 Q Do you know how many active septic systems  
25 there are in the watershed?

02:26PM

1 MR. GARREN: Object to form.

2 A I think that calls for a legal conclusion  
3 because I'm not sure what -- and I'm also not sure  
4 what the term waters of the state of Oklahoma mean.

5 Q All right. For the purposes of this question,  
6 assume for me, and I'm not saying this is the waters  
7 of the state of Oklahoma, but for purposes of this  
8 question because it's disputed, for purposes of this  
9 question so you can provide a factual answer, if --

03:38PM

10 assume for me the waters of the state of Oklahoma  
11 include groundwater and any waters flowing in a  
12 definable stream in the state of Oklahoma. If that  
13 is the state, the waters of the state of Oklahoma,  
14 can you connect the pollution, any pollution in any  
15 of those waters to the operations of any contract  
16 poultry grower?

03:38PM

03:39PM

17 MR. GARREN: Object to the form.

18 A Okay. With respect to flowing streams, would  
19 you include ephemeral streams?

20 Q No.

03:39PM

21 A No.

22 Q Figure 22 still, phosphorus versus zinc plot,  
23 this data point that's at the upper right, do you  
24 know which edge of field sample that is?

25 A Not as we sit here today. I've considered

03:39PM

1 in the plant matter and actually transport it and  
2 deposit it as more soluble phosphorus in manure in  
3 or near water courses?

4 MR. GARREN: Object to form.

5 Q That's not part of your evaluation? 11:50AM

6 A It is not.

7 Q Let's see. Your report, Page 4, you covered  
8 this with Mr. George yesterday. You said the only  
9 contaminants of concern in the Illinois River  
10 watershed are phosphorus and bacteria; correct? 11:51AM

11 A That's what I said, yes.

12 Q All right. What is the form of phosphorus  
13 that is the contaminant of concern?

14 A All forms of phosphorus are going to be the  
15 contaminant of concern because phosphorus undergoes 11:51AM  
16 numerous reactions with environmental media. So  
17 adding phosphorus in one form today, it can turn  
18 into a form that's taken up by algae tomorrow in a  
19 stream.

20 Q With the bulk of the water quality data, is 11:51AM  
21 this most oftenly expressed as total P?

22 A That's correct.

23 Q Okay. So when -- there have been a lot of  
24 discussion in the last two days about phosphorus,  
25 phosphorus, phosphorus. What typically you and 11:51AM

1 that these are written by Soil Conservation Service  
2 employees. Now, if there are state employees --  
3 that's a conclusion of law as to what I think,  
4 whether it's a state sponsored plan or not, but  
5 it's -- the animal waste management plans tend to be 01:22PM  
6 written by extension people.

7 Q All right. I won't debate with you who writes  
8 them. Are you aware of the fact that there are  
9 animal waste management plans that have been written  
10 for landowners in the Illinois River watershed in 01:22PM  
11 Oklahoma that authorize the land application of  
12 poultry litter?

13 MR. GARREN: Object to form.

14 A Okay. I'll recognize -- with respect to your  
15 question, I would agree that there are nutrient 01:23PM  
16 management plans or animal waste management plans  
17 that have been written that pertain to lands within  
18 the Illinois River watershed that specify the  
19 circumstances of disposal of litter on people's  
20 lands. 01:23PM

21 Q Okay, and those plans would dictate the  
22 allowable rate at which poultry litter can be land  
23 applied --

24 MR. GARREN: Object to form.

25 Q -- on specific fields? 01:23PM



1       **A**       Yes.

2       **Q**       And previously my question was sort of framed  
3       within the context of the state of Oklahoma, but  
4       those plans, nutrient management plans, are -- have  
5       also been written and issued to landowners on the  
6       Arkansas side of the basin?

01:23PM

7       **A**       I have seen nutrient management plans on the  
8       Arkansas side of the basin. It's my understanding  
9       that for -- until very recently they were not  
10      required.

01:24PM

11      **Q**       By whom?

12      **A**       Pardon?

13      **Q**       Weren't required by --

14      **A**       Weren't required by the State of Arkansas.

15      **Q**       Do you know the extent to which the poultry  
16      companies or any poultry company has required its  
17      contract growers to pursue and obtain a nutrient  
18      management plan notwithstanding state requirements?

01:24PM

19      **A**       I know that there are some instances in which  
20      contract growers have had that requirement.

01:24PM

21      **Q**       Is that the extent of your knowledge, what you  
22      just stated?

23      **A**       The extent of my knowledge as I sit here  
24      today. I've read a ton of records. I think there  
25      are requirements by some contract growers that --

01:24PM

1 for nutrient management plans for the growers.

2 Q Okay.

3 A I don't recall when that was first  
4 implemented.

5 Q All right. The -- now, back to where I 01:25PM  
6 started a few moments ago, would you agree that one  
7 reason poultry litter is land applied near where  
8 it's generated in the Illinois River watershed is  
9 because there are landowners that have animal waste  
10 management plans that allow poultry litter to be 01:25PM  
11 land applied in those areas?

12 A Well, I'm not sure that it requires an animal  
13 waste management plan, but there are individuals who  
14 would desire to have it applied.

15 Q All right. Let me -- then tell me, do you 01:25PM  
16 know whether all land application of poultry litter  
17 in the Illinois River watershed today requires the  
18 applicator to be licensed?

19 MR. GARREN: Object to form.

20 A Okay. I think we need to break that down into 01:25PM  
21 by state.

22 Q If you want to answer by state, that's fine.

23 A With respect to Oklahoma, commercial  
24 applicators need to be licensed is my understanding,  
25 and if you are applying it to your own land, you 01:26PM

1 have to make an application report. I'm not sure of  
2 the licensure requirements if you are applying waste  
3 to your own land.

4 Q Okay.

5 A In Arkansas, I am not familiar enough with  
6 that state's regulatory structure to have an  
7 opinion, but it's possible.

01:26PM

8 Q Is all the poultry litter that is applied in  
9 this day and time in the Illinois River watershed  
10 subject to rules or regulations in either Oklahoma  
11 or Arkansas depending on where the land is?

01:26PM

12 MR. GARREN: Object to form.

13 A I believe that at the present time that is  
14 true.

15 Q All right. Are you aware of any circumstance,  
16 Dr. Fisher, where poultry litter has been land  
17 applied in the Illinois River watershed in  
18 violations of the provisions of that landowner's  
19 nutrient management plan or animal waste management  
20 plan?

01:27PM

01:27PM

21 MR. GARREN: Object to form.

22 A I know of none, but there's also no way of  
23 truly checking that.

24 Q Now, in your report at Page 13 where you go  
25 into your history discussion of the defendants, you

01:27PM

1 When you and I started talking earlier, I thought  
2 the Record was pretty clear that the constituents of  
3 concern are phosphorus and bacteria. When you say  
4 constituents in the context of your statement on  
5 Page 50, are you referring to anything else other  
6 than phosphorus and bacteria?

02:30PM

7 **A** These would be the entirety of the suite of  
8 chemicals pretty much from poultry litter.

9 **Q** Are you claiming that there is water in the  
10 Illinois River watershed that is polluted by any  
11 constituent other than phosphorus and bacteria?

02:30PM

12 MR. GARREN: Object to the form.

13 **A** Okay. Am I claiming that there are any  
14 constituents of concern other than phosphorus and  
15 bacteria?

02:30PM

16 **Q** Yeah.

17 **A** No.

18 **Q** All right. Opinion 21, you refer to -- or I'm  
19 going to modify the word, attenuation. What is  
20 attenuation or attenuated mean?

02:31PM

21 **A** To attenuate is to diminish. The peculiar  
22 aspect of Karst terrain, which is what this speaks  
23 to, is that materials in Karst, there are very --  
24 there can be very large fractures at depth. Those  
25 fractures permit a flow of water much as through a

02:31PM

1           **A**           I don't know what -- I'm sorry. I don't know  
2           what to assume, Mr. Elrod. I just can report what I  
3           saw in those fields.

4 Q Now, you testified twice in the last two days  
5 that the contaminants of concern in this case are 04:54PM  
6 phosphorus and bacteria; correct?

7	<b>A</b>	That's correct.
---	----------	-----------------

8 Q Now, I have to prepare a defense for my client  
9 at the trial of this case. You understand that?

10	<b>A</b>	Yes, I do.	04:54PM
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11 Q Does that mean that I don't have to be  
12 concerned about preparing a defense for metals?

13 MR. GARREN: Object to form.

14      **A**      You mean metals as pollutants?

15	Q	Yes, sir.	04:54PM
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16       **A**       That's correct.

17 Q And does that assume that I do not have to  
18 prepare a defense for my client regarding hormones?

19 MR. GARREN: Object to the form.

20       **A**           Well, I've never offered any opinion on                                      04:54PM  
21 hormones, nor do I know of any experts who have.

22 Q Does that assume then -- can I assume then I  
23 do not have to prepare a defense for my client  
24 regarding hormones?

25 MR. GARREN: Object to form. 04:55PM

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1       **A**       I don't believe you do.

2       **Q**       And then does that also assume that I do not  
3       have to prepare a defense for my client regarding  
4       nitrogen?

5               MR. GARREN: Object to form. 04:55PM

6       **Q**       Especially nitrogen impact on groundwater?

7               MR. GARREN: Same objection.

8       **A**       I don't know. I don't believe so.

9       **Q**       And does that also -- can I also assume that I  
10      do not have to prepare a defense for my client on 04:55PM  
11      the issue of antimicrobial effects?

12              MR. GARREN: Object to form.

13      **A**       Could you define antimicrobial effects?

14      **Q**       I can't any better than I just said it.

15      **A**       Okay. If you are talking about a defense of 04:55PM  
16      your client with respect to the presence of  
17      antibiotic materials in litter --

18      **Q**       Yes, sir.

19      **A**       -- I don't believe so.

20      **Q**       All right. If you'd look at your report on 04:55PM  
21      Table 1, I didn't note the page.

22      **A**       Table 1?

23      **Q**       Yes, sir. It should be the growth in chicken  
24      production in the Illinois River watershed.

25      **A**       I have that, yes, sir. 04:56PM